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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/749,752
Filing Date: December 28, 2000
Appellant(s): AKIMOTO, TAIZO

Cameron W. Beddard
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 23, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Prior Art of Record

5968728	Perttunen et al.	10-1999
6362004	Noblett	3-2002
6215894	Zeleny et al.	4-2001

(8) Ground of Rejection and Arguments

102(e) rejection as anticipated by Zeleny

Claims 7-8, 10-11, 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Zeleny et al (US Pat. 6,215,894, filed February 26, 1999).

In *Re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure.

Zeleny et al. (herein referred to as Zeleny) teaches a system for scanning biochip arrays which includes a unique image array identifier recorded for each array, and a computer-stored record corresponding to each identifier and containing the parameters of the experiment in the array identified by the identifier (abstract). As seen in Figure 1, the microarray biochip contains two array regions and an identifier location. Figure 3, clearly illustrates the system which comprises an arrayer, a scanner, an analyzer, a computer system. Zeleny teaches that the identifier may be a number with numerals imprinted on the slide along with a bar code representation of the number (col. 2, lines 17-18). The experiment identifier is imprinted on the chip prior to the deposition of the array experiment, a means for attaching management information peculiar to the test piece to a predetermined location on the test piece (col. 2, lines 18-19). A file folder (i.e., "directory") is opened in a computer system and is logically linked to the array identifier (col. 2, lines 20-21). The folder may contain various parameters of the experiment array, e.g., a map of the reagents deposited on the array, identification of the fluorescent tags and the reagents to which they are bonded, the locations of any calibration dots on the chip, the identification of the scanning and processing protocols to be used in connection with the scanning process (col. 2, lines 23-27). Moreover, the system is programmed to retrieve the information from the biochip (col. 2, lines 30-31)(limitations of instant Claims 7-8). The biochip has been imprinted with experiment identifiers relating to the experiment performed in the regions. The identifiers comprise both a number and a corresponding bar code representation of the numeral. The identifier may be a number in which some of the digits identify experiment parameters of

the array, others identify the source of the arrays, other may identify the scanning and analysis protocols or even-provide the operating parameters for those protocols, or identify the array itself (col. 3, lines 8-18). The array comprises an array of test spots, control spots and focus spots (col. 3, lines 20-22). Following the imprinting of the information on the biochip, the chips are loaded into an arrayer to deposit test spots, passed to a scanner to scan the bar codes, opens a file folder, analyzes the contents of the image maps, and generates an output table (col.3, lines 40-45).

The identifier may be a number in which some of the digits identify experiment parameters of the array, others identify the source of the arrays, others may identify the scanning and analysis protocols or even-provide the operating parameters for those protocols, and still others identify the array itself. Therefore, the management information includes, for example, the substances used as the probes.

As seen in Figure 4, the system contains a first storage means, namely an imaging system with host computer. This element decodes identification. Additionally, the system also contains means for saving image data with imaging protocols and quantitative analysis protocols, i.e. information concerning the probes (col. 3, lines 48-68).

The recitation in instant Claim 8 states that the management information is printed on the test piece using a marker the same as or similar to the marker used for marking the target substance. The claims are drawn to an analysis system, i.e. a product. Therefore, the elements of the system include a means for attaching management information to the test piece, i.e. a spotter; a means for obtaining

information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece, i.e. a photomultiplier (PMT); and a means for storing the management information, i.e. a computer. The computer has several file folders as means for storing information. The instant claim does not require any management information, any target or any substrate. The instant claim does not require any particular method steps because the claim is directed to a product. Therefore, the recitation does not impart any additional limitations on the instant claims. As seen in Figure 3, the system of Zeleny comprises a printer, an arrayer, a scanner an analyzer, an analysis program and a computer system (limitations of claim 20-21).

With respect to instant Claim 18-19, the claim does not require any management information. The claim is drawn to a means for attaching management information (i.e. a spotter)(see page 6 of the instant specification).

Thus, since Zeleny teaches every limitation of the claims, Zeleny anticipates the claimed invention.

Response to Arguments

Does Zeleny teach a means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance where the means plus function language is interpreted using 112/6th paragraph in light of the specification wherein the specification teaches spotters and inkjets as means for attaching management information?

The claims are broadly drawn to an analysis system for analyzing a target substance marked with a marker to bind selectively to some of plural types of probes arranged and fixed on a test piece and detecting positions of the probes to which the target substance has bound comprising:

means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance (i.e. a spotter or ink jet),

means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece (i.e. a scanner or scanning system), and

means for storing the management information in association with the information concerning the positions of the probes to which the target substance has bound (a database, file or computer)(Claim 8 of the instant application, as an example).

The brief does not specifically address the third means for storing the management information, therefore, the limitation will not be addressed below and has been deemed conceded by the appellant.

In *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Further, the MPEP provides that the "Office personnel are to give the

claimed means plus function limitations their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed.”

The instant specification teaches “the pattern of the ID information may be attached on the test piece using a spotting device, an ink jet printer, etc (page 6, lines 24-26 of specification). The specification also teaches that “plural types of organic molecules (plural types of cDNAs in this example) are arranged in matrix on a membrane (or a base) using a spotter” (page 16, line 22 of specification). Further, the specification states that “a certain radioactive isotope... is disposed on the predetermined location 20 in a pattern representing the content of the management information using the same spotter as the one used for arranging cDNAs on the membrane 2” (page 17, lines 5-8 of specification).

Therefore, given the specification and the structures, material, or acts described in the specification and equivalents thereof, the arrayer (i.e. a spotter) of Zeleny anticipates the claimed means of the instant claims. Figure 3, clearly illustrates the system of Zeleny which comprises an arrayer, a scanner, an analyzer, a computer system. The experiment identifier is imprinted on the chip prior to the deposition of the array experiment, a means for attaching management information peculiar to the test piece to a predetermined location on the test piece (col. 2, lines 18-19).

The arguments presented in the brief provides that “the fact that the specification discloses that the pattern of the ID information may be attached on the test piece using

a spotting device, an ink jet printer, etc. is irrelevant to whether "using a marker the same as or similar to the marker used for marking the target substance" has patentable weight" (page 10 of brief filed November 23, 2004). This argument has been thoroughly reviewed, but is not found persuasive because under 112/6th paragraph, the office personnel look to the structures provided in the specification to interpret the language. The specification clearly teaches a spotting device is a means for attaching management information peculiar to the test piece to a predetermined location on the test piece. The recitation "using a marker the same as or similar to the marker used for marking the target substance" does not change the structure provided by the specification would have such a function. A spotter, arrayer or other means for attaching management information has been taught by Zeleny and anticipates the claimed means for attaching management information.

The response asserts that instant independent claims 8, 11, 20 and 21 explicitly recite the marker. This argument has been thoroughly reviewed, but is not found persuasive because the instant claims, Claim 8, for example provides three elements: (a) means for attaching management information, (b) means for obtaining information and (c) means for storing the management information. While the claims discuss that the means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance, this recitation is direct to the function of the means for attaching. The claim does not require the markers in the product claimed. The brief asserts that "Zeleny is ambiguous with respect to the feature of

using a marker the same as or similar to the marker used for marking the target substance." This argument has been thoroughly reviewed, but is not found persuasive because, as discussed above, the claim does not require using a marker or the marker in the claimed product. The specification teaches a spotter may be used for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance. Thus, the spotter/arrayer of Zeleny meets the limitations of the instant claims. The spotter or array of Zeleny is the "means for attaching management information peculiar to the test piece" when the means plus function limitation at issue is properly construed.

Does Zeleny teach a means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece where the means plus function language is interpreted using 112/6th paragraph in light of the specification wherein the specification teaches ID and positions of probes may be detected simultaneously requiring no additional step or additional apparatus?

In *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts

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described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Further, the MPEP provides that the "Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed."

The instant specification teaches "the ID information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional step, i.e., the step of detecting the ID information may be incorporated into the step of obtaining the information concerning the positions of the probes to which the target substance has bound" (page 9, lines 10-15 and page 23 of the specification). The specification further teaches the management information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional apparatus, i.e. the function of the means for detecting the management information may be incorporated into the means for obtaining information concerning the positions of the probes to which the target substance has bound" (page 13, lines 19-25 of specification). The specification emphasizes, that an examiner has previously been required to manually input to a computer the set of information concerning the position of each probe to identify the types of hybridized probes based on the set of information (page 3, lines 18-25). Further, "it has sometimes occurred that the examiner inputs the set of

information concerning the wrong test piece or that the experiment is carried out on the wrong test piece" (page 4, lines 3-6).

The specification has described the acts of the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece as encompassing detection simultaneously requiring no additional step or no additional apparatus (page 9, lines 10-15; page 13, lines 20-25; page 23, lines 21-26 of the specification, for example).

The response asserts that Zeleny does not teach the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece. This argument has been thoroughly reviewed, but is not found persuasive because the specification specifically describes the acts of simultaneous detection as encompassing means which require no additional step and require no additional apparatus. The specification further emphasizes that an examiner or technician had been previously required to manually input the information to a computer.

The Zeleny scanning process may be construed in two ways. One way is that multiple steps are utilized in Zeleny where scanning in of information is initially performed as one step, opening a file folder is the next step, and lastly scanning the microarray image is yet another step. That is 3 continuous steps. Another reasonable interpretation is that this is all one step, albeit complex in nature directed to microarray scanning. This second interpretation supports the instant rejection. It should be noted

that the instant specification and disclosure lacks any definition as to what may or may not be contained in the "step" associated with the means for obtaining information simultaneously in the "means..." in instant claim 8, lines 8-10. That is, a complex "step" as in Zeleny for scanning of a microarray which internally includes substeps is also a "step" as instantly claimed, albeit complex in nature. Further, in Zeleny the scanner which scans the barcodes, a system responds by opening file folder that are logically linked to the identifiers requires neither an additional step by an operator or examiner nor any additional apparatus.

The response asserts that "Zeleny clearly discloses scanning of the barcodes is not performed simultaneously with the opening of the file folders" (page 13 of brief filed November 23, 2004). As read in light of the instant specification, no additional examiner input is required. The scanner does not require any additional steps or any additional apparatus. Zeleny specifically teaches that when a biochip is loaded into the scanner, the scanner attempts to read the array identifiers on the chip. If it can read the identifiers it transmits them to the host computer system. Only if it can not read the identifiers, it prompts the operator to enter them manually. The microarray image map is then acquired (col. 3, lines 50-60). Figure 4 of Zeleny clearly illustrates the simultaneous analysis system. The scanner allows for obtaining information of the positions of the probes and the management information without any additional step or apparatus, i.e. simultaneously. The scanner of Zeleny is the "means for obtaining information concerning the positions of the probes to which the target substance has

bound and simultaneously detecting the management information attached to the test piece" when the means plus function limitation at issue is properly construed.

102(e) rejection as anticipated by Noblett

Claims 7-8, 10-11, 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Noblett (US Pat. 6,362,004, filed November 9, 1999).

In *Re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure.

Noblett teaches a microarray scanning system for conducting experiments which includes an apparatus for translating the secured substrate in two axes where the substrate has at least one fiducial mark on the planar substrate as a means for positioning and aligning the substrate for subsequent spot placement, analysis or comparison procedures. Figure 2 illustrates the microarray. The microarray scanning system includes an optical system, a detector, a positioning system and a computational device, such as a computer (col. 4, lines 3-5). The microarray comprises a plurality of target spots, first and second fiducial marks which can be imprinted having

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a predetermined shape (col. 5, lines 32-40). Noblett teaches that the first fiducial mark is approximately the same size as the size of the target spot and may include the same target material forming the target spots (col. 5, lines 40-43). Noblett also teaches the use of dilution spots adjacent to the array for use in calibrating the microarray scanning system (col. 5, lines 53-55). Since the placement of the test spots was done with reference to a fiducial mark, the spot placement software can map the coordinates of the target spots relative to the fiducial mark. The stored coordinates may be placed into the memory and used to improve the accuracy or execution of subsequent procedures such as quantitation (col. 7, lines 15-20). The quantification grid for placement over the microarrays locates the precise location of all hybridized spots. The quantification grid is generated from preprogrammed parameters (e.g. spot diameter, spot spacing and array spacing) to represent an initial regular grid (col. 7, lines 50-58). Therefore, the management information, fiducial marks, are formed during the spot placement operation, the fluorescent tags obtain information as to the probes and the management information and the computer stores the information.

The fiducial mark, used to accurately and automatically align multiple images gathered by a microarray scanner from within an alignment or quantitation program, may be genetic material. The fiducial mark may comprise genetic material that responds to various materials used to test target spots. Therefore, the management information includes, for example, the position of the probes and the type of probes.

Noblett teaches that the fiducial mark comprises genetic material (col. 8, lines 20-25, see limitations of Claim 3). Noblett also teaches that probe material is labeled with fluorescent tags (col. 6, lines 34-38).

The recitation in Claim 8 states that the management information is printed on the test piece using a marker the same as or similar to the marker used for marking the target substance. The claims are drawn to an analysis system, i.e. a product. Therefore, the elements of the system include a means for attaching management information to the test piece, i.e. a spotter; a means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece, i.e. a photomultiplier (PMT); and a means for storing the management information, i.e. a computer. The claim does not require any management information, any target or any substrate. The claim does not require any particular method steps because the claim is directed to a product. As seen in Figure 3, Noblett's system comprises a robotic spot placement center, a scanning system, a computational device and a program. Therefore, the recitation does not impart any additional limitations on the instant claims.

With respect to Claim 18-19, the claim does not require any management information. The claim is drawn to a means for attaching management information (i.e. a spotter)(see page 6 of the instant specification).

Thus, since Noblett teaches every limitation of the claims, Noblett anticipates the claimed invention.

Response to Arguments

Does Noblett teach a means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece where the means plus function language is interpreted using 112/6th paragraph in light of the specification wherein the specification teaches ID and positions of probes may be detected simultaneously requiring no additional step or additional apparatus?

The claims are broadly drawn to an analysis system for analyzing a target substance marked with a marker to bind selectively to some of plural types of probes arranged and fixed on a test piece and detecting positions of the probes to which the target substance has bound comprising:

means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance (i.e. a spotter or ink jet),

means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece (i.e. a scanner or scanning system), and

means for storing the management information in association with the information concerning the positions of the probes to which the target substance has bound (a database, file or computer)(Claim 8 of the instant application, as an example).

The brief does not specifically address the first means for attaching management information or third means for storing the management information, therefore, these

limitations will not be addressed below and have been deemed conceded by the appellant.

In *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Further, the MPEP provides that the "Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed."

The instant specification teaches "the ID information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional step, i.e., the step of detecting the ID information may be incorporated into the step of obtaining the information concerning the positions of the probes to which the target substance has bound" (page 9, lines 10-15 and page 23 of the specification). The specification further teaches the management information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional apparatus, i.e. the function of the means for detecting the management information may be incorporated into the means for obtaining information concerning the positions of the

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probes to which the target substance has bound" (page 13, lines 19-25 of specification).

The specification emphasizes, that an examiner has previously been required to manually input to a computer the set of information concerning the position of each probe to identify the types of hybridized probes based on the set of information (page 3, lines 18-25). Further, "it has sometimes occurred that the examiner inputs the set of information concerning the wrong test piece or that the experiment is carried out on the wrong test piece" (page 4, lines 3-6).

The specification has described the acts of the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece as encompassing detection simultaneously requiring no additional step or no additional apparatus (page 9, lines 10-15; page 13, lines 20-25; page 23, lines 21-26 of the specification, for example).

The response asserts that Noblett does not teach the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece. This argument has been thoroughly reviewed, but is not found persuasive because the specification specifically describes the acts of simultaneous detection as encompassing means which require no additional step and require no additional apparatus. The specification further emphasizes that an examiner or technician had been previously required to manually input the information to a computer.

The Noblett scanning process may be construed in two ways. One way is that multiple steps are utilized in Noblett where scanning in of information is initially performed with a scanning system, which includes the steps of illuminating the fiducial mark, acquiring the illuminated fiducial mark, sending the image acquired by the detector to the computational device, analyzing the acquired image for focused excitation radiation beam size and sending a correction command as required, generating a quantification grid. That is 4 continuous steps. Another reasonable interpretation is that this is all one step, albeit complex in nature directed to microarray scanning. This second interpretation supports the instant rejection. It should be noted that the instant specification and disclosure lacks any definition as to what may or may not be contained in the "step" associated with the means for obtaining information simultaneously in the "means..." in instant claim 8, lines 8-10. That is, a complex "step" as in Noblett for scanning of a microarray which internally includes substeps is also a "step" as instantly claimed, albeit complex in nature. Further, in Noblett the scanner which scans the barcodes, a system responds by opening file folder that are logically linked to the identifiers requires neither an additional step by an operator or examiner nor any additional apparatus.

Here, as stated above, in Noblett the microarray scanning system includes an optical system, a detector, a positioning system and a computational device, such as a computer (col. 4, lines 3-5). The microarray scanning system includes sending the image acquired by the detector to the computational device. As read in light of the instant specification, no additional examiner input is required. The scanner does not

require any additional steps or any additional apparatus. Figure 4 of Noblett clearly illustrates the simultaneous analysis system. The scanner allows for obtaining information of the positions of the probes and the management information without any additional step or apparatus, i.e. simultaneously. The scanner of Noblett is the "means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece" when the means plus function limitation at issue is properly construed.

102(b) rejection as anticipated by Perttunen

Claims 7-8, 10-11, 18-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Perttunen et al (US Pat. 5,968,728, October 1999).

In Re Donaldson, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure.

Perttunen et al. (herein referred to as Perttunen) teaches a molecular detection device which includes a support member, a plurality of molecular receptors, a database, a processor, a placement apparatus and a data writing device (Figure 2, abstract). As

seen in Figure 11 and 12, the support comprises id codes, molecular receptor sites and data. Perttunen teaches that the processor generates mappings of molecular receptors to sites of a molecular detection device. The processor may be a computer. Perttunen teaches "to deduce the molecular structures in the sample, the hybridization information is processed in conjunction with data indicating the arrangement of the molecular receptors" (col. 2, lines 40-43). The data can be stored in a database (col. 2, lines 46-47). The molecular receptors for binding or hybridizing have a predetermined structure which may include DNA probe for detecting a corresponding DNA sequence in a sample or RNA probe. Perttunen teaches that the molecular receptors can be bound to the surface using a primer, a gel or an adhesive. The apparatus also comprises a data writing device that writes data associated with the mapping directly to the support member. The data can include data which indicates or encodes the mapping and/or data which identifies the mapping. Additionally, the system includes a database which receives a signal associated with the mapping from the processor which can include an identification code for the mapping or data indicative of the mapping (col. 5, lines 7-10). Finally the support contains identification codes which allows determination that the support when separated are for the same device. The identification codes include a series of human readable printed characters or a machine-readable bar code (col. 8, lines 55-62).

The identification code identifies the mapping of the molecular receptors to the sites without revealing the mapping (col. 8, lines 8-15). The identification code can identify a record in a database having the data indicative of the mapping stored therein.

The identification code can include a series of letters, numbers or characters or machine readable data. Therefore, the management information includes, for example, the position of the probes and the type of probes.

The recitation of Claim 8 states that the management information is printed on the test piece using a marker the same as or similar to the marker used for marking the target substance. The claims are drawn to an analysis system, i.e. a product. Therefore, the elements of the system include a means for attaching management information to the test piece, i.e. a spotter; a means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece, i.e. a photomultiplier (PMT); and a means for storing the management information, i.e. a computer. The claim does not require any management information, any target or any substrate. The claim does not require any particular method steps because the claim is directed to a product. Therefore, the recitation does not impart any additional limitations on the instant claims. The system of Perttunen comprises a placement apparatus, a processor, data writing device, database and a computer.

With respect to Claim 18-19, the claim does not require any management information. The claim is drawn to a means for attaching management information (i.e. a spotter)(see page 6 of the instant specification).

Thus, since Perttunen teaches every limitation of the claims, Perttunen anticipates the claimed invention.

Response to Arguments

Does Perttunen teach a means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance where the means plus function language is interpreted using 112/6th paragraph in light of the specification wherein the specification teaches spotters and inkjets as means for attaching management information?

The claims are broadly drawn to an analysis system for analyzing a target substance marked with a marker to bind selectively to some of plural types of probes arranged and fixed on a test piece and detecting positions of the probes to which the target substance has bound comprising:

means for attaching management information peculiar to the test piece to a predetermined location on the test piece using a marker the same as or similar to the marker used for marking the target substance (i.e. a spotter or ink jet),

means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece (i.e. a scanner or scanning system), and

means for storing the management information in association with the information concerning the positions of the probes to which the target substance has bound (a database, file or computer)(Claim 8 of the instant application, as an example).

The brief does not specifically address the third means for storing the management information, therefore, the limitation will not be addressed below and has been deemed conceded by the appellant.

In *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Further, the MPEP provides that the "Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed."

The instant specification teaches that "plural types of organic molecules (plural types of cDNAs in this example) are arranged in matrix on a membrane (or a base) using a spotter" (page 16, line 22 of specification). Further, the specification states that "a certain radioactive isotope... is disposed on the predetermined location 20 in a pattern representing the content of the management information using the same spotter as the one used for arranging cDNAs on the membrane 2" (page 17, lines 5-8 of specification).

Therefore, given the specification and the structures, material, or acts described in the specification and equivalents thereof, the placement apparatus (i.e. a spotter) of

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Perttunen. As stated in the rejection above, the system of Perttunen comprises a placement apparatus, a processor, data writing device, database and a computer. The placement apparatus received a signal indicative of a mapping from the processor. Perttunen teaches that the placement apparatus includes a robotic placement apparatus such as a liquid handling robot (col. 4, lines 10-15).

The specification clearly teaches a spotting device is a means for attaching management information peculiar to the test piece to a predetermined location on the test piece. The recitation "using a marker the same as or similar to the marker used for marking the target substance" does not change the structure provided by the specification would have such a function. A spotter or placement apparatus, such as a liquid handling robot or other equivalent means for attaching management information has been taught by Perttunen. The spotter or placement apparatus of Perttunen is the "means for attaching management information peculiar to the test piece" when the means plus function limitation at issue is properly construed.

Does Perttunen teach a means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece where the means plus function language is interpreted using 112/6th paragraph in light of the specification wherein the specification teaches ID and positions of

probes may be detected simultaneously requiring no additional step or additional apparatus?

In *In re Donaldson*, 16 F.3d 1189, 1193, 29 USPQ2d 1845, 1848 (Fed. Cir. 1994), the court held: The plain and unambiguous meaning of paragraph six is that one construing means- plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure, material, or acts described therein, and equivalents thereof, to the extent that the specification provides such disclosure. Further, the MPEP provides that the "Office personnel are to give the claimed means plus function limitations their broadest reasonable interpretation consistent with all corresponding structures or materials described in the specification and their equivalents including the manner in which the claimed functions are performed."

The instant specification teaches "the ID information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional step, i.e., the step of detecting the ID information may be incorporated into the step of obtaining the information concerning the positions of the probes to which the target substance has bound" (page 9, lines 10-15 and page 23 of the specification). The specification further teaches the management information and the information concerning the positions of the probes to which the target substance has bound may be detected simultaneously requiring no additional apparatus, i.e. the function of the means for detecting the management information may be incorporated into the means for obtaining information concerning the positions of the

probes to which the target substance has bound" (page 13, lines 19-25 of specification).

The specification emphasizes, that an examiner has previously been required to manually input to a computer the set of information concerning the position of each probe to identify the types of hybridized probes based on the set of information (page 3, lines 18-25). Further, "it has sometimes occurred that the examiner inputs the set of information concerning the wrong test piece or that the experiment is carried out on the wrong test piece" (page 4, lines 3-6).

The specification has described the acts of the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece as encompassing detection simultaneously requiring no additional step or no additional apparatus (page 9, lines 10-15; page 13, lines 20-25; page 23, lines 21-26 of the specification, for example).

The response asserts that Perttunen does not teach the means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece. This argument has been thoroughly reviewed, but is not found persuasive because the specification specifically describes the acts of simultaneous detection as encompassing means which require no additional step and require no additional apparatus. The specification further emphasizes that an examiner or technician had been previously required to manually input the information to a computer.

The Perttunen scanning process may be construed in two ways. One way is that multiple steps are utilized in Perttunen where scanning with a processor to generate mappings of molecular receptors to sites of a molecular detection device is initially performed as one step, sending a signal associated with the mapping from the processor is the next step, and lastly writing the data is yet another step. That is 3 continuous steps. Another reasonable interpretation is that this is all one step, albeit complex in nature directed to microarray scanning. This second interpretation supports the instant rejection. It should be noted that the instant specification and disclosure lacks any definition as to what may or may not be contained in the "step" associated with the means for obtaining information simultaneously in the "means..." in instant claim 8, lines 8-10. That is, a complex "step" as in Perttunen for scanning of a microarray which internally includes substeps is also a "step" as instantly claimed, albeit complex in nature. Further, in Perttunen the scanner which scans the barcodes, a system responds by opening file folder that are logically linked to the identifiers requires neither an additional step by an operator or examiner nor any additional apparatus.

Here, as stated above, a data writing device receives a signal associated with the mapping from the processor. The data writing device writes data associated with the mapping directly to the support member. The data can include data which indicates or encodes the mapping and/or data which identifies the mapping (col. 4, lines 61-67). As read in light of the instant specification, no additional examiner input is required. The writing device does not require any additional steps or any additional apparatus. The data indicates or encodes the mapping and/or data which identifies the mapping. The

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writing device allows for obtaining information of the positions of the probes and the management information without any additional step or apparatus, i.e. simultaneously.

The writing device of Perttunen is the "means for obtaining information concerning the positions of the probes to which the target substance has bound and simultaneously detecting the management information attached to the test piece" when the means plus function limitation at issue is properly construed.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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